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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,310	09/16/2003	Mau-Song Chou	NGC-00088 (339-804)	1341

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John A. Miller
Warn, Burgess & Hoffmann, P.C.
P.O. Box 70098
Rochester Hills, MI 48307

EXAMINER	
GABOR, OTILIA	
ART UNIT	**PAPER NUMBER**
2878	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,310	CHOU ET AL.	
	Examiner	Art Unit	
	Otilia Gabor	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/16/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3, 5, 12-25, 45-51, 58-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luukanen et al. (U. S. Patent 6,242,740) in view of Laufer (U. S. Patent 6,853,452) or Chou et al. (U. S. Patent 6,531,701) or Butler et al. (U. S. Patent 6,885,965).

Regarding claims 1, 5, 19, 20, 25, 45, 51, 52, 58, 59, 65 Luukanen discloses a system and method for the passive imaging of a sample in the THz frequency range, the system including a detection device (108) with a field of view (see Fig.1) and comprising a cold surface (111) positioned in the field of view of the detection device

(108), the cold surface providing a cold background relative to the temperature of the sample (see Col.6, line 44-Col.7, line 8). Luukanen discloses that the system can be used in a variety of applications including submillimeter range spectroscopy, but he fails to specifically disclose that an emission spectrum is generated from the sample from which the chemical and biological materials present in the sample are detected. However, since spectroscopy inherently means generation of spectrum of radiation from the sample, and since the Luukanen system works in the passive mode, it would have been obvious that by stating that submillimeter spectroscopy applications are possible to mean passive emission spectra generation as disclosed by Laufer. Also, since Luukanen discloses that many different samples and their components can be analyzed and imaged, with focus on missile detection as well as temperature analysis (see Col.12, lines 43-67), it would have been obvious to one having ordinary skill in the art that this system can be used for the remote detection of chemicals in the air cloud or any other gaseous or liquid samples as disclosed in Laufer and/or Chou.

Regarding claims 2, 21, 46, 61 Luukanen discloses that the cold surface includes a THz absorber cooled by a container (dewar) containing liquid-nitrogen. Luukanen fails to disclose that the dewar contains liquid-helium to cool the absorbing material, however it would have been obvious to one having ordinary skill in the art to include liquid-helium instead of liquid-nitrogen, for both are achieving the same goal of cooling down the absorber and such a substitution is within the skill of one in the art.

Regarding claims 3, 22, 60 Laufer discloses a FTIR as the spectrometer to perform the passive emission analysis (see Col.31, line 65-Col.32, line 8).

Regarding claim 12, 14, 16, 17, 18, 23, 24, 45, 47, 49, 50, 62, 63, 64 Luukanen discloses that the system comprises: an antenna with feed horn assemblies (see Col.9, line 50-Col.10, line 7) for collecting the emissions and directing the emissions to the detection device (see Col.11, line 55), a collimator (110) for focusing the field-of-view of the detection device onto the cold surface (111), a power splitter (bolometer lenses) and a plurality of detection channels (bolometer elements) to receive and direct emissions into the plurality of channels in order to detect multiple frequency bands simultaneously (see Col.11, lines 15-67), where the detection device is a terahertz receiver operating in the sub-millimeter frequency range (see Col.12, lines 56-59).

Regarding claims 13, 15 Chou discloses using a Cassegrain-type telescope to collimate the emission radiation.

Regarding claims 47, 48 Luukanen discloses a frequency amplifier but fails to disclose a diode or radiometer as the detector, however it would have been obvious to one having ordinary skill in the art to replace the bolometer element of Luukanen with a diode for detection of THz emissions, since such a switch is within the ordinary skill in the art (see Laufer, Col.12, lines 5-16, 27).

4. Claims 4, 6-11, 26-44, 52-57 rejected under 35 U.S.C. 103(a) as being unpatentable over Luukanen and Laufer or Chou and further in view of Arnone et al. (US 2004/0155665 A1).

Regarding claims 4, 6-11, 26, 32, 38, 52 Luukanen discloses the detection system for detecting and analyzing a sample, however it fails to disclose that the sample is in the claimed compartment, or transmissive substrate, or filter positioned in

an air intake vent of a facility, or a plastic or glass container. However, since he discloses a general system of detecting and analyzing samples of any shape or form, it would have been obvious to analyze a sample that is contained in a sample container or filter as claimed, since as disclosed by Arnone, samples disclosed in containers transparent to THz radiation, is the typical way of analyzing whether certain materials are present in a sample. Since Luukanen does not limit where the samples are or in what they are contained as long as THz emission spectroscopy measurements can be done, it would have been obvious that his system can be used in situations where the sample is contained in a container or in air vents in buildings.

Regarding claims 27-31, 33-37, 39-44, 53-57 see paragraphs above.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Lee et al. (6,593,582).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 571-272-2435. The examiner can normally be reached on Monday, Thursday-Friday between 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Otilia Gabor
Primary Examiner
Art Unit 2878